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AUTHOR Heflich, David A.; Rice, Margaret L.

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ABSTRACT

Educational research has long been conducted at a distance: both mail and telephone have successfully been used in survey research. The development of the Internet offers yet another medium over which research can be conducted. This study discusses the use of electronic mail as a vehicle for conducting educational research. It focuses particularly on the way in which electronic mail can be used to engage in reflective dialogues which yield deep, qualitative data. The research methodology is presented along with examples of the dialogue that emerged from the semi-structured interview protocol that was used. Subjects were 25 K-12 educators from schools in 16 states and six countries. Interview questions were sent by e-mail to each participant. Results indicated that e-mail is a viable method for obtaining reflective data from participants. (Contains 30 references.) (Author/AEF)

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Online Survey Research: A Venue for Reflective Conversation and Professional Development

David A. Heflich
University of Nevada, Las Vegas
Curriculum and Instruction
United States
dheflich@ccmail.nevada.edu
and
Margaret L. Rice
Instructional Technology
The University of Alabama
United States
mrice@bamaed.ua.edu

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Abstract: Educational research has long been conducted at a distance; both mail and telephone have successfully been used in survey research. The development of the Internet offers yet another medium over which research can be conducted. This study discusses the use of electronic mail as a vehicle for conducting educational research. It focuses particularly on the way in which electronic mail can be used to engage in reflective dialogues, which yield deep, qualitative data. The research methodology is presented along with examples of the dialogue that emerged from the semi-structured interview protocol that was used.

Introduction

Educational research has traditionally been conducted by undertaking studies of educational statistics, surveying those involved in educational practice, or more recently, conducting ethnographic studies of the practice occurring at one or a variety of sites. Many studies are conducted at a distance; written surveys, for example, are mailed to a number of people or institutions within a defined region; others are interviewed by phone to obtain more complete information than can be obtained in a written survey. Surveys though are limited by the questions asked, and often don't offer the researcher or the respondent the opportunity to review the response in order to restructure the question or refine the answer.

The development of the Internet offers another medium through which to conduct educational research. The very factors that make Electronic Mail (E-mail) a favored mode of communications, the fact that E-mail is asynchronous and text-based, lends itself to exchanges that are timely and thoughtful. In this paper we describe a project in which E-mail was used as a medium of educational research, and the quality of data that emerged from that process. The project is described, with an emphasis on the methodology, and examples of the data are presented. The viability of text-based E-mail as a research tool, the process of finding participants, and gathering sufficiently detailed information from the participants is also discussed.

Survey Research

The use of online survey research is relatively new. Hiltz and Turoff (1978) discussed the possible use of computer-mediated communication as an opinion research tool, especially using predictive data gathering techniques such as Delphi. Honey and McMillan (1994) used online technology to interview subjects who had participated in an earlier national telecommunications survey (Honey & Henriquez , 1993). All but two participants completed open-ended questionnaires using the Internet. James, Wotring and Forrest (1993) found that online surveys are "fast, relatively inexpensive and allow users to request feedback that can clarify misunderstandings about the instrument" (p. 52). Thach (1995) analyzed the use of E-mail to conduct survey research and found it to be cheaper, easier to edit, faster to administer, simpler to invite participants, a higher response rate, more candid answers, and a potentially quicker response time with a wider area of coverage. The speed of electronic transmission allows messages to be transmitted worldwide in a matter of minutes as opposed to traditional mail which may take months to

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reach a country outside the U.S. This allows for quick data collection from a variety of populations, which might otherwise not be utilized.

E-mail is particularly well suited as a vehicle for conducting personal interviews when space and time do not connect the researcher and subject. Personal interviews are the most effective way of obtaining the cooperation of the interviewee, and allow for the most flexibility in asking questions, probing for answers, and building rapport (Katz, 1993). E-mail interviews can be viewed as a dialogue between individuals that can easily and inexpensively be transformed into usable data, making them a highly valuable tool for conducting research (Thach, 1995). Online technology overcomes the barriers imposed by space, time, and location (Harasim, 1993). Foster (1994) listed various advantages of the online interview format, including: it is relatively inexpensive; interviews can be sent many places at the same time; it is asynchronous, meaning respondents can answer when it is convenient; respondents can choose to participate or not; the responses return in a form which is already readable for analysis; the data is easily transferred from a mail program to a program for analysis; and very little transcription is necessary. He did caution, though, that online interview protocols must be more self-explanatory and explicit than those conducted in face to face or telephone interviews. Foster also discussed the problems of using listserv sites as locations for posting an interview protocol, while Sudamlis (1992) stated that participants in online research are often self-selecting individuals who subscribe to listservs.

E-Mail and Reflective Conversation

E-mail has been discussed as a useful tool for teaching and learning. Used as a tool for online communication, E-mail has been credited with helping teachers move to more constructivist teaching practices than previously held (Heflich, 1998). An important aspect of this movement is the extent to which E-mail can stimulate discourse that leads to reflection by the participants. E-mail discussion groups have been used in preservice teacher education to help develop reflective thought (McIntyre & Tlusty, 1995) and the moral development of preservice teachers (Harrington, 1992).

Central to all of these efforts is the significance of the protected conversational space that is offered by E-mail. Online conversation has previously been characterized as reflective (Heflich, 1997). Reflective conversation is an exchange of ideas in which the expression and receipt of ideas leads to the construction of new understanding of their own experience among the participants. Bamberger (1991) has described such an exchange as "conceptual chaining" in which ideas are articulated, exchanged, recreated and re-exchanged as they move from person to person in a conversation. The reflective aspect of such a chain is the way in which individuals capture the ideas that are seemingly forming in the air and construct their own meaning from them as the reflectively integrate them with previously held knowledge.

Feldman (1995) has described the use of conversation as a research tool in the teaching of action research courses. Conversation for Feldman (1995) counts as a reflective, meaning-making process because it represents an exchange of ideas that lead to understanding. Conversations can become a tool for critical inquiry when the goal of the conversational exchange is to share and develop knowledge and promote understanding among the participants.

Conversation offers us an opportunity to reflect-on-action, as it allows us to discuss and process into our intuitive knowledge base (Iran-Nejad, 1994) things that have previously occurred. It can also involve reflection-in-action as we dynamically engage in conceptual chaining (Bamberger, 1991) in the midst of an ongoing dialogue. In either case, conversation serves as a vehicle for stimulating reflective thought and may lead to both personal and professional growth.

Reflective thought has long been considered an important aspect of professional growth. Argyris and Schon (1974) identified the contradiction between one's espoused theory, one's expressed beliefs, and one's theory-in-use, beliefs made evident by one's activity. Growth for Argyris and Schon (1974) was recognized as the dissonance between one's espoused theory and theory-in-use and taking steps to align them. Osterman and Kottkamp (1993) discuss the role of inquiry as an element of professional growth. It is inquiry among individuals that helps expose the contradictions between beliefs and practices of teachers. Feldman et al. (1996) argue that teachers in a reflective stance examine their own practice exposing and questioning tacit assumptions about their teaching. This allows them to reflectively evaluate past practices and seek alternatives.

Project Description

The project for which email studies were used was designed to evaluate the attitudes of educators who participate in online discussion groups regarding the impact that online technology has had on their practice as educators, and on the learning of their students. The project was concerned with understanding whether online technology is another educational fad, or whether it contributes to changes in educational practice from didactic to constructivist methodologies. Also examined was the assessment of the impact of Computer-Mediated Communication (CMC) on constructivist teaching and learning using the trends identified by Collins (1991). The questions the research attempted to answer were:

1. Are teachers with more access online technology in their classrooms more likely to exhibit the practices of a constructivist teacher identified by Collins (1991) than those who are isolated users of computer technology in their classrooms?
2. Which structural or sociocultural elements of school support the use of online computer technology in a constructivist manner?

Subjects

One assumption of the study was that educators with experience using online computer technology will possess insights into the changes that exposure to online resources will have on classroom instruction and the relationship between student and teacher. It was believed that this population would have ideas concerning the role of technology in the long-term restructuring of teaching and learning. The goal was to reach the typical case of an online educator. A typical case may be located by first developing the criteria that define the case and then seeking those who possess the defining characteristics (Lecompte et al., 1995). The typical case in this study is an educator whose commitment to using online technology is made evident by his/her participation in online educational discussion groups. In order to locate the desired population, notices describing the study were posted on a variety of listserv discussion groups geared toward educators. Thirty-five people responded to the posting. Of these 35, 24 respondents agreed to participate in the study. Efforts to reestablish contact with the original 24 respondents met with mixed success, so a second round of notices was posted. Twenty-five respondents ultimately expressed interest in participating in the study representing schools in 16 states and 6 countries. They represented schools that had already adopted the use of the Internet, and were experimenting with its use; and schools that were in the process of adopting the Internet. Fifteen of the educators came from that schools were primarily elementary; ten were from secondary or K-12 schools.

Materials

An interview protocol was developed for use in a written interview exchange, which allows for in-depth exploration of the contextual considerations involved in decisions to implement online technology, and integrate it into the curriculum. The use of a semi-structured interview protocol enables data collection to proceed in a conversational fashion. In an semi-structured interview the reflective element of the conversation leads to new thoughts on the part of the researcher and subject, leading to the construction of new meanings (Klave, 1990, cited in Miles & Huberman, 1995). Questions asked can follow the thematic outline, but be specifically addressed to the situation and concerns previously expressed by the subject.

Data Collection and Analysis

The interview protocol was used as a guide for questioning the respondents. Interview questions were sent by E-mail to each participant, one at a time. The respondent answered the question by E-mail before the next one was sent. This exchange of messages allowed the interview to adopt a conversational tone. Messages containing subsequent questions contained reference to the previous response. In this way the researcher and the respondents developed a rapport that allowed for a thoughtful, reflective exchange of

questions and answers. Once begun, the E-Mail exchanges lasted for a period of weeks. The researcher interpreted the data collected, then sent his interpretations back to the participants to be certain he understood their replies. Once agreement was reached, the responses were analyzed.

The data collected were qualitative, textual quotes as they appeared in the E-mail exchanges between the researcher and the participants. They were downloaded into Microsoft Word 6.0, where they were saved into separate text files of questions and answers for each participant. These files were then reformatted for compatibility with The Ethnographer 4.0, a qualitative data analysis program. Data analysis was conducted according to the guidelines of the Constant Comparative Method (CCM) (Glaser & Strauss, 1967). The goal of CCM is the emergence of theory from data, derived through repeated review of the data, each time examining it for common themes.

Results

The results of this study demonstrated several things, concerning both the objectives of the study and the methodology. This paper is mainly concerned with the results of the methodology. The results indicated that E-mail is a viable method for obtaining reflective data from participants. The participants in the study provided a large quantity of very thoughtful responses because it led them to think creatively about their practice. Reflective conversations have been recognized as stimulating professional growth among the participants (Feldman, 1995; Fine & Riggs, 1994; Lincoln, 1992). Conversation itself has been acknowledged as a mechanism for fostering reflective practice (Feldman, 1995; Osterman & Kottkemp, 1993; Schon, 1987); and online technology, used as CMC has been successfully used in organized professional development (Schrum, 1992), in reflective seminars at the university level (Harrington, 1992), and as an unanticipated consequence of online usage by professionals (Lincoln, 1992). This study appears to be the first example of an online research project fostering professional growth through interviews that resulted in reflective conversations.

Riel (1990, 1993, 1994) and Schrum (1992) discussed the positive impact of online communication on teaching and learning as an opportunity for professional growth. A number of study participants wrote about their interactions with others online. They valued online educational discussion groups and the relationships they develop with others who participate in them. Participants in this study cite online communications with others as one of the most valuable aspects of CMC. Some participants commented that the interview/discussions gave them the opportunity to explore ideas and reflect upon their practice as educators. The extent to which the interviews served as reflective conversations that led to professional growth, in the course of which the participants reorganized their own knowledge can be seen in the comments of one of the study participants to one of the interview questions.

Question: *What do you see as the future of education when you consider the impact of online technology? What sort of impact will it have on teaching and learning? What will be the role of a teacher? What will the life of a student involve? How will these represent a change from what exists today?*

Answer: *I am concerned about the isolation that computer use often entails. It does not seem to me, as I watch my classes work, that the use of online technology has fostered working together. I am concerned that much that has been developed in terms of authority systems over the past 100 years (selection media, reviewing for library materials, refereeing for academic journals, and the like) does not lend itself to a system of universal access and information such as the Internet. Obviously this has its good side, but I don't see much emphasis on teaching students to evaluate the information they get as I do teaching them to "access" it. I'm concerned, too, about the emphasis on the picture over the word. The web is more popular than gophers because of the ability to use pictures, etc., but I fit it much slower, actually, as an information source. But I read. My students look at the pictures and move on. It's almost impossible for me to imagine the future of education, technology changes so fast and we are obviously just at the beginning of online tool development and online information systems.*

Quite clearly this person had the opportunity to reflect on the question given the conversational space created by both the asynchronous nature of E-mail and the conversational methodology of sending one question at a time. The rapport developed between the researcher and the subject during the interview

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process allowed the interview to become a rich source of data that fully explored the beliefs of educators. E-Mail which overcomes the limits of time and space seems to hold great promise for educational research.

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